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तैयार मिश्रित रंग रोगन, ब्रुश करने  
लायक, लकड़ी के लिए प्राइमर —  
विशिष्टि

( दूसरा पुनरीक्षण )

**Ready Mixed Paint, Brushing, Wood  
Primer — Specification**  
( *Second Revision* )

ICS No.87.040

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## FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Paints, Varnishes and Related Products Sectional Committee had been approved by the Chemical Division Council.

This standard was first published as IS 3536E-1966 in 1966 as an emergency standard for a material alternative to that covered by IS 103 : 1962 to meet the urgent needs of the country. It was prepared with the assistance of an *ad hoc* Consultative Group composed of representatives of Ministry of Defence; Directorate General of Supplies and Disposals; Ministry of Railways; Indian Paint Association; and other manufacturers, technologists and testing authorities under the convenership of Development Officer (Paints), Directorate General of Technical Development, New Delhi. In this standard indigenous raw material were used very judiciously. This was revised in 1999 and IS 103 was withdrawn. In the revised version requirement for composition had been simplified, a new clause of lead restriction had been included. The optional requirements of spreading capacity and spreading time had been dropped, while requirements for scratch hardness and water content had been included in that revision.

This is one of the few standards where restriction of lead has already been prescribed as 5 percent by mass as lead or compounds of lead or mixture of both, calculated as lead monoxide (PbO). Revision of this standard has been taken up with a view to modify limit of lead restriction in this standard. The technical committee responsible for the formulation of this standard observed that in practice most of the paints are used for household/decorative as well as in industrial/commercial applications. Taking cognizance of the fact that lead exposure of human being, particularly children, has adverse effect on human health and also adverse impact on environment and safety, the Technical Committee felt the need to introduce different levels of lead restriction in all paint standards likely to be used for household and decorative applications.

This product is extensively used for painting of wood works and decorative purposes in house and buildings as well as for industrial purposes. The technically committee observed that technologically it is not feasible to manufacture this product with very low limit of lead. The Committee also observed that the scope of this product allows this paint to be used for industrial applications and decided to prescribe maximum permissible limit of lead as 300 ppm keeping in view of the scope for exposure to children to the paint once dried and to avoid hazardous impact of lead exposure on environment and human health. Further, majority of consumers are not aware of the consequences of lead toxicity and its long-term implications to human health. Therefore, in this revision, along with lead restriction, a suitable cautionary notice has been included in the marking clause

There is another standard available on similar application as below:

IS 3585 : 1966 ‘Specification for ready mixed paint, aluminium, brushing, priming, water resistant for woodwork’.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard*

# READY MIXED PAINT, BRUSHING, WOOD PRIMER — SPECIFICATION

*( Second Revision )*

**1 SCOPE**

**1.1** This standard prescribes requirements and methods of sampling and test for ready mixed paint, brushing, wood primer.

**1.2** This material is intended for use as a primer for wood.

**2 REFERENCES**

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of and necessary adjuncts to this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

**3 TERMINOLOGY**

**3.1** For the purpose of this standard, the definitions given in IS 1303 and the following shall apply.

**3.1.1** *Ambient Temperature* — It is the temperature between 21°C and 38°C.

**4 REQUIREMENTS**

**4.1** The material shall be of such a composition so as to meet the requirements of this standard.

**4.2 Lead Restriction**

The material shall not contain lead or compounds of lead or mixtures of both, calculated as metallic lead more than 300 ppm, when tested for restriction from lead in accordance with IS 101(Part 8/Sec 5).

**4.3** The material shall also comply with the requirements given in Table 1.

**4.4 Keeping Properties**

The material when stored in original sealed container under ambient condition shall conform to all the requirements as mentioned in **4.1** to **4.3** of this standard on testing after a period of one year from the date of manufacture.

**5 PACKING AND MARKING****5.1 Packing**

The material shall be packed as agreed to between the purchaser and the supplier, taking precautions that material does not deteriorate during storage. The packing is subject to the provisions of the law in force in the country at that time.

**5.2 Marking**

**5.2.1** Each container shall be marked with the following:

- a) Name of the material and indication whether undercoating or finishing;
- b) Indication of the source of manufacture;
- c) Lead Content, Max;
- d) Volume of the material;
- e) Batch No. or Lot No. in code or otherwise;
- f) Month and year of manufacture; and
- g) Type of the material.
- h) A cautionary note as below:
  - 1) Keep out of reach of children.
  - 2) Dried film of this paint may be harmful if eaten or chewed.
  - 3) This product may be harmful if swallowed or inhaled.

**5.2.2 BIS Certification Marking**

The container may also be marked with the Standard Mark.

**5.2.2.1** The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made there under. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers maybe obtained from the Bureau of Indian Standards.

**6 SAMPLING**

Representative samples of the material shall be drawn as prescribed under **6** of IS 101 (Part 1/Sec 1).

**Table 1 Requirements for Ready Mixed Paint, Brushing, Wood Primer**  
(Clauses 4.3 and 1.1)

Sl No.	Characteristics	Requirements	Methods of Test Ref to	
			IS 101 (4)	Annex (5)
(1)	(2)	(3)		
i)	Drying time, h, <i>Max</i>		(Part 3/Sec 1)	—
	a) Surface dry	2		
	b) Hard dry	16		
ii)	Consistency	Smooth, uniform and suitable for brushing on the wood	—	B
iii)	Mass, in kg/10 litres, <i>Min</i>	12	(Part 1/Sec 7)	—
iv)	Finish	Smooth and matt to egg shell gloss	(Part 3/Sec 4)	—
v)	Colour	white, pink or grey or as agreed to between purchaser and supplier	(Part 4/Sec 2)	—
vi)	Flexibility and adhesion,			
	a) Bend test with Type 1 apparatus and 6.25 dia mandrel	No visible damage or detachment of film	2 of (Part 5/Sec 2)	—
	b) Scratch hardness at a load of (500 g)	No such scratch as to show the bare metal	3 of (Part 5/Sec 2)	—
vii)	Flash point	Not below 30°C	(Part 1/Sec 6)	—
ix)	Composition:			
	a) Volume solids, percent, <i>Min</i>	40	(Part 8/Sec 6)	—
x)	Water content <sup>1)</sup> percent by mass, <i>Max</i> (if suspected to be present)	1.0	(Part 2/Sec 1)	—
xi)	Resistance to water	To pass the test	—	C
xii)	Keeping properties	Not less than one year the date of manufacturing	(Part 6/Sec 2)	—

<sup>1)</sup> Test the presence of water qualitatively by heating about 20 ml of the stirred and thoroughly mixed material in a metal dish. Presence of water, if any, is indicated by a cracking noise.

## 6.2 Preparation of Test Samples

### 6.2.1 For Drying Time

Unless specified otherwise, wood panels shall be prepared as prescribed in 6 of IS 101 (Part 1/Sec 3). Apply the paint uniformly on each side of the panel by brushing to give a dry film mass commensurate with the mass per 10 litre as specified in Table 1 of IS 101 (Part 3/Sec 4). Prepared test panel then subjected to the test as specified in IS 101 (Part 3/Sec 1) as soon as possible.

### 6.2.2 For Flexibility and Adhesion Test

For both bend test and scratch hardness test prepare separate burnished tin plate panels, rectangular, of sizes 100 mm × 50 mm × 0.3 mm as prescribed in 3 of IS 101 (Part 1/Sec 3). Apply one coat of material uniformly by brushing on the panels as to give a dry film mass commensurate with the mass per 10 litre as specified in Table 1 of IS 101 (Part 3/Sec 4). The coated test panels shall be dried for 48 h for scratch hardness test and 96 h for bend test and then shall be conditioned at

a temperature of  $27 \pm 2^\circ\text{C}$  and relative humidity of  $65 \pm 5$  percent for a minimum time of 16 h. Prepared test panels the subjected to the test as prescribed in 2 and 3 of IS 101 (Part 5/Sec 2) for bend test and scratch hardness test respectively.

## 6.3 Criteria for Conformity

A lot shall be declared as conforming to the requirements of this standard if the test results of the composite sample satisfy the requirements prescribed under 4.

## 7 TEST METHODS

**7.1** The tests shall be conducted as per the methods referred to in 4.1, 4.2 and col 4 and col 5 of Table 1.

### 7.2 Quality of Reagents

Unless otherwise specified, pure chemicals and distilled water ( see IS 1070 ) shall be employed.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

**ANNEX A**

( Clause 2 )

**LIST OF REFERRED INDIAN STANDARDS**

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
IS 101	Methods of sampling and test for paints, varnishes and related products	Part 4	Optical tests on paint films,
Part 1	Test on liquid paints (general and physical),	Sec 1 : 1988	Wet opacity ( <i>third revision</i> )
Sec 1 : 1966	Sampling ( <i>third revision</i> )	Sec 2 : 1989	Colour ( <i>third revision</i> )
Sec 3 : 1986	Preparation of panels ( <i>third revision</i> )	(Part 5/Sec 2)	Mechanical tests on paint films,
Sec 6 : 1987	Flash point ( <i>third revision</i> )	1989	Section 2 Flexibility and adhesion tests ( <i>third revision</i> )
Sec 7 : 1987	Mass per 10 litres ( <i>third revision</i> )	Part 8	Tests for pigments and other solids
(Part 2/Sec 1)	Test on liquid paints (Chemical examination), Section 1 Water content ( <i>third revision</i> )	Sec 5 : 1993	Lead restriction test
1988		Sec 6 : 1993	Volume solids
Part 3	Tests on paint film formation,	IS 1070 : 1992	Reagent grade water ( <i>third revision</i> )
Sec 1 : 1986	Drying time ( <i>third revision</i> )	IS 1303 : 1983	Glossary of terms relating to paints ( <i>second revision</i> )
Sec 4 : 1987	Finish ( <i>third revision</i> )		

**ANNEX B**

[Table 1, Sl No. (ii)]

**CONSISTENCY****B-1 APPARATUS****B-1.1 Palette Knife or Metal Rod****B-1.2 Wood Panels**

**B-1.2.1** Unless specified otherwise, wood panels shall be prepared as prescribed in 6 of IS 101 (Part 1/Sec 3).

**B-2 PROCEDURE**

**B-2.1** Insert a clean metal rod or palette knife into the original container and examine the nature of settling.

**B-2.2 Observations**

The material shall not cake hard inside the container and shall be in such a condition that stirring easily produces a smooth uniform primer suitable for brushing on wood panels.

## ANNEX C

[Table 1, Sl No. (xi)]

## DETERMINATION OF RESISTANCE TO WATER

## C-1 APPARATUS

## C-1.1 Wooden Panel

A panel shall be made from chir wood, *Pinus* spp., fam. Pinaceae, and shall be 200 mm × 100 mm × 10 mm in size with rounded edges to be taken for this test.

## C-1.2 Weighing Balance

Of required range and least count.

C-1.3 Other apparatus are as prescribed in 3 of IS 101 (Part 7/Sec 1).

## C-2 PROCEDURE

## C-2.1 Preparation of Test Panel

The panel shall be prepared as prescribed in 6.1 of IS 101 (Part 1/Sec 3). Apply the paint uniformly to both sides of the panel to give a dry film mass commensurate with the mass per 10 litre as specified in Table 1 of IS 101 (Part 3/Sec 4) and allow it to air-dry for 24 h. Apply two further coats of the paint in the same manner at an interval of 24 h and allow it to dry for 24 h at room temperature after the application of the final coat. Seal the edges of the painted panel with wax up to a depth of 6 mm by dipping in suitable molten wax and allow

to dry for 48 h at room temperature. Calculate the area of the remaining exposed painted surface ( $A$ ).

C-2.2 The coated test panel shall be conditioned as prescribed in 5.1 of IS 101 (Part 7/Sec 1). Weigh the test panel ( $W_1$ ). Then follow the procedure as prescribed in 5.2 and 5.2.2 of IS 101 (Part 7/Sec 1). However the panel shall be completely immersed in water at room temperature for 7 days.

C-2.3 At the end of 7 days remove the panel from the tank and wipe off the surface water with a blotting paper and re-weigh immediately ( $W_2$ ).

## C-2.4 Calculations

From the area of the painted surface ( $A$ ) in contact with water, which is taken as total surface area of the panel not coated with wax, calculate the increase in weight per unit area ( $\Delta W$ ) as below:

$$\Delta W = \frac{W_2 - W_1}{A} \text{ mg/cm}^2$$

## C-3 OBSERVATIONS AND RESULTS

C-3.1 The paint shall be deemed to have passed the test, if the increase in weight per unit area shall not exceed 40 mg/cm<sup>2</sup>.

## Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards : Monthly Additions'.

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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